CLAIMS:

1. A liquid crystal display apparatus, comprising: a pair of substrates: and a liquid crystal layer sandwiched between the substrates, the pair of substrates including a first substrate having a plurality of scanning signal wiring, a plurality of data signal wiring intersecting the scanning signal wiring in a matrix form, and a plurality of thin-film transistors formed on the intersections, the liquid crystal display apparatus being configured such that at least a single pixel is formed in each region surrounded by the plurality of scanning signal wiring and data signal wiring, each pixel includes a common signal electrode, which is connected to a plurality of pixels via common signal wiring, and a pixel electrode connected to the corresponding thin-film transistor, and a voltage applied to the common signal electrode and the pixel electrode generates in the liquid crystal layer an electric field having a parallel component predominantly to the first substrate,

wherein the common signal electrode and at least one of the data signal wiring and the scanning signal wiring are partially superimposed onto each other via an interlayer insulating film, the superimposed part forms a capacity, at least one of insulating films included in the interlayer insulating film is selectively formed at least on a part of a region on the pixel electrode at least in the super-

imposed part of the common signal electrode and at least one of the data signal wiring and the scanning wiring.

2. A liquid crystal display apparatus, comprising a pair of substrates and a liquid crystal layer sandwiched between the substrates with liquid crystal of negative $\Delta\varepsilon$, the pair of substrates including a first substrate having a plurality of scanning signal wiring, a plurality of data signal wiring intersecting the scanning signal wiring in a matrix form, and a plurality of thin-film transistors formed on the intersections, the liquid crystal display apparatus being configured such that at least a single pixel is formed in each region surrounded by the plurality of scanning signal wiring and data signal wiring, each pixel includes a common signal electrode, which is connected to a plurality of pixels via common signal wiring, and a pixel electrode connected to the corresponding thin-film transistor, and a voltage applied to the common signal electrode and the pixel electrode generates in the liquid crystal layer an electric field having a parallel component predominantly to the first substrate,

wherein the common signal electrode and at least one of the data signal wiring and the scanning signal wiring are partially superimposed onto each other via an interlayer insulating film, the superimposed part forming a capacity, and when SA denotes

Equation 1 and SB denotes Equation 2 ($m \geq 1$), SA < SB is satisfied, where n indicates the number of layers of the insulating films included in the interlayer insulating film, ε_K indicates a permittivity of an insulating film on k layer, d_K indicates a film thickness of an insulating film of k layer, m indicates the number of layers of insulating films disposed between the pixel electrode and a first alignment film disposed on the pixel electrode on at least a part of a region on the pixel electrode, ε_L indicates a permittivity of an insulating film on L layer, d_L indicates a film thickness of L layer, and ε_{LC} indicates a permittivity of liquid crystal in a perpendicular direction to a director of liquid crystal.

$$\frac{1}{\sum_{k=1}^{n} \frac{d_k}{\varepsilon_k}} \qquad \ldots (1)$$

$$\frac{1}{\left(\sum_{L=1}^{m} \frac{d_L}{\varepsilon_L}\right) + \frac{\sum_{k=1}^{n} d_k - \sum_{L=1}^{m} d_L}{\varepsilon_{LC}}} \qquad \ldots (2)$$

3. A liquid crystal display apparatus, comprising a pair of substrates and a liquid crystal layer sandwiched between the substrates with liquid crystal of negative $\Delta\varepsilon$, the pair of substrates including a first substrate having a plurality of scanning signal wiring, a plurality of data signal wiring intersecting the scanning signal wiring in a matrix form, and a

plurality of thin-film transistors formed on the intersections, the liquid crystal display apparatus being configured such that at least a single pixel is formed in each region surrounded by the plurality of scanning signal wiring and data signal wiring, each pixel includes a common signal electrode, which is connected to a plurality of pixels, and a pixel electrode connected to the corresponding thin-film transistor, and a voltage applied to the common signal electrode and the pixel electrode generates in the liquid crystal layer an electric field having a parallel component predominantly to the first substrate,

wherein the common signal electrode and at least one of the data signal wiring and the scanning signal wiring are partially superimposed onto each other via an interlayer insulating film, the super-imposed part forming a capacity, and when SA denotes Equation 3 and SB denotes Equation 4 ($m \geq 1$), SA < SB is satisfied, where n indicates the number of layers of the insulating films included in the interlayer insulating film, ε_K indicates a permittivity of an insulating film on k layer, d_K indicates a film thickness of an insulating film of k layer, m indicates the number of layers of insulating films disposed on the pixel electrode at least in a part of a region on the pixel electrode, ε_L indicates a permittivity of an insulating film on L layer, d_L indicates a film

thickness, and ε_{LC} indicates a permittivity of liquid crystal in parallel with a director of liquid crystal.

$$\frac{1}{\sum_{k=1}^{n}\frac{d_k}{\varepsilon_k}} \qquad \cdots (3)$$

$$\frac{1}{\left(\sum_{L=1}^{m}\frac{d_L}{\varepsilon_L}\right)+\frac{\sum_{k=1}^{n}d_k-\sum_{L=1}^{m}d_L}{\varepsilon_{LC}}} \qquad \cdots (4)$$

4. A liquid crystal display apparatus, comprising a pair of substrates and a liquid crystal layer sandwiched between the substrates with liquid crystal of negative $\Delta\varepsilon$, the pair of substrates including a first substrate having a plurality of scanning signal wiring, a plurality of data signal wiring intersecting the scanning signal wiring in a matrix form, and a plurality of thin-film transistors formed on the intersections, the liquid crystal display apparatus being configured such that at least a single pixel is formed in each region surrounded by the plurality of scanning signal wiring and data signal wiring, each pixel includes a common signal electrode, which is connected to a plurality of pixels, and a pixel electrode connected to the corresponding thin-film transistor, and a voltage applied to the common signal electrode and the pixel electrode generates in the liquid crystal layer an electric field having a parallel component predominantly to the first

substrate,

wherein the common signal electrode and at least one of the data signal wiring and the scanning signal wiring are partially superimposed onto each other via an interlayer insulating film, the superimposed part forming a capacity, no insulating film existing between the first alignment film and the pixel electrode which are disposed on the first substrate, and when SA denotes Equation 5 and SB denotes Equation 6, SA < SB is satisfied, where n indicates the number of layers of the insulating films included in the interlayer insulating film, k indicates a permittivity of an insulating film on k layer, d_K indicates a film thickness of an insulating film on k layer, and ε_{LC} indicates a permittivity in a perpendicular direction to a director of liquid crystal.

$$\frac{1}{\sum_{k=1}^{n} \frac{d_k}{\varepsilon_k}} \qquad \dots (5)$$

$$\frac{\varepsilon_{LC}}{\sum_{k=1}^{n} d_k} \qquad \dots (6)$$

5. A liquid crystal display apparatus, comprising a pair of substrates and a liquid crystal layer sandwiched between the substrates with liquid crystal of positive $\Delta\varepsilon$, the pair of substrates including a first substrate having a plurality of scanning signal wiring,

a plurality of data signal wiring intersecting the scanning signal wiring in a matrix form, and a plurality of thin-film transistors formed on the intersections, the liquid crystal display apparatus being configured such that at least a single pixel is formed in each region surrounded by the plurality of scanning signal wiring and data signal wiring, each pixel includes a common signal electrode, which is connected to a plurality of pixels via common signal wiring, and a pixel electrode connected to the corresponding thin-film transistor, and a voltage applied to the common signal electrode and the pixel electrode generates in the liquid crystal layer an electric field having a parallel component predominantly to the first substrate,

wherein the common signal electrode and at least one of the data signal wiring and the scanning signal wiring are partially superimposed onto each other via an interlayer insulating film, the superimposed part forming a capacity, no insulating film existing between the first alignment film and the pixel electrode which are disposed on the first substrate, and when SA denotes Equation 7 and SB denotes Equation 8, SA < SB is satisfied, where n indicates the number of layers of the insulating films included in the interlayer insulating film, ε_k indicates a permittivity of an insulating film on k layer, d_K indicates a film thickness of an insulating film on k layer, and ε_{LC}

indicates a permittivity in parallel with a director of liquid crystal.

$$\frac{1}{\sum_{k=1}^{n} \frac{d_k}{\varepsilon_k}} \qquad \ldots (7)$$

$$\frac{\varepsilon_{LC}}{\sum_{k=1}^{n} d_k} \qquad \ldots (8)$$

6. The liquid crystal display apparatus according to claims 1 to 5, wherein between the interlayer insulating film and a part of the pixel electrode, the interlayer insulating film being formed on a superimposed part of the common signal electrode and at least one of signal wiring of the data signal wiring and the scanning signal wiring, the insulating film being disposed between the first alignment film and the pixel electrode that are formed on the first substrate at least on a part of a region on the pixel electrode, a difference is made at least in one of the number of layers of the insulating films, a film thickness of a material for forming the layer, and a permittivity of a material for forming the layer.

7. The liquid crystal display apparatus according to claim 1, wherein the interlayer insulating film is composed of a single layer and the single layer is selectively formed at least on a part of a region on the pixel electrode, the interlayer insulating film

being formed on a superimposed part of the common signal electrode and at least one of signal wiring of the data signal wiring and the scanning signal wiring.

8. The liquid crystal display apparatus according to claim 7, wherein the interlayer insulating film is a part of a first insulating film serving as the gate insulating film of the thin-film transistor or a part of a second insulating film serving as a surface protecting film of the thin-film transistor.

9. The liquid crystal display apparatus according to claim 8 7, wherein the interlayer insulating film is a third insulating film other than the first insulating film serving as the gate insulating film of the thin-film transistor or the second insulating film serving as a surface protecting film of the thin-film transistor.

10. The liquid crystal display apparatus according to claim 1, wherein the interlayer insulating film is composed of two layers, and at least one of the layers is selectively formed at least on a part of a region on the pixel electrode, the interlayer insulating film being formed on a superimposed part of the common signal electrode and at least one of signal wiring of the data signal wiring and the scanning signal wiring.

11. The liquid crystal display apparatus according to claim 10, wherein the interlayer insulating film is composed of two layers including a part of the first

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insulating film serving as the gate insulating film of the thin-film transistor and a part of the second insulating film serving as a surface protecting film of the thin-film transistor.

12. The liquid crystal display apparatus according to claim 10, wherein in the interlayer insulating film, one of the layers is a part of the first insulating film serving as the gate insulating film of the thin-film transistor or a part of the second insulating film serving as a surface protecting film of the thin-film transistor, and

the other layer is a third insulating film other than the first insulating film and the second insulating film, the third insulating film being selectively formed at least on a part of a region on the pixel electrode.

13. The liquid crystal display apparatus according to claim 1, wherein the interlayer insulating film is composed of three or more layers, the insulating film being formed on a superimposed part of the common signal electrode and at least one of signal wiring of the data signal wiring and the scanning signal wiring, and at least one of the layers is selectively formed at least on a part of a region on the pixel electrode.

14. The liquid crystal display apparatus according to claim 13, wherein the interlayer insulating film includes all of a part of the first insulating film serving as the gate insulating film of the thin-film

transistor, a part of the second insulating film serving as a surface protecting film of the thin-film transistor, and the third insulating film other than the first insulating film and the second insulating film, the third insulating film being selectively formed at least on a part of a region on the pixel electrode.

15. The liquid crystal display apparatus according to claim 1, wherein at least on a part of a region on the pixel electrode, the pattern of the interlayer insulating film, which is formed selectively on a superimposed part of the common signal electrode and at least one of signal wiring of the data signal wiring or the scanning signal wiring, is formed according to the pattern of the data signal wiring or the scanning signal wiring.

16. The liquid crystal display apparatus according to claim 15, wherein when a width of the data signal wiring is WDL, a width of the common signal electrode is WCOM1 on a part superimposed with the data signal wiring, and a width of the interlayer insulating film selectively formed according to the pattern of the data signal wiring is WIS01, $WDL < WIS01 < WCOM1$ and $WDL > 0$ or $WDL < WCOM1 < WIS01$ and $WDL > 0$ are established.

17. The liquid crystal display apparatus according to claim 15, wherein when a width of the scanning signal wiring is WGL, a width of the common signal

electrode is WCOM2 on a part superimposed with the scanning signal wiring, and a width of the interlayer insulating film selectively formed according to the pattern of the scanning signal wiring is WIS02, WGL < WIS02 < WCOM2 and WGL > 0 or WGL < WCOM2 < WIS02 and WGL > 0 are established.

18. The liquid crystal display apparatus according to claim 1, wherein on the interlayer insulating film formed on a superimposed part of the common signal electrode and the data signal wiring, at least a part of the insulating film, which is formed at least on a part of a region on the pixel electrode, is selectively removed or reduced in thickness.

19. The liquid crystal display apparatus according to claim 18, wherein at least a part of the insulating film, which is formed at least on a part of a region on the pixel electrode, is selectively removed or reduced in thickness according to the pattern of the pixel electrode.

20. The liquid crystal display apparatus according to claim 19, wherein when a width of the pixel electrode is WPX and a width of the interlayer insulating film is WIS03 on a region in which the insulating film is selectively removed or reduced in thickness according to the pattern of the pixel electrode, WIS03 < WPX and WIS03 > 0 are established.

21. The liquid crystal display apparatus according to claim 1, wherein at least in a region other than

an exposed region for connecting terminals, a fourth insulating film is formed so as to cover at least the pixel electrode and the common signal electrode.

22. The liquid crystal display apparatus according to claim 1, wherein ~~the~~ a second insulating film serving as ~~the~~ a surface protecting film of the thin-film transistor is omitted.

23. The liquid crystal display apparatus according to claim 7, wherein the third insulating film and the fourth insulating film are coating type insulating films.

24. The liquid crystal display apparatus according to claim 23, wherein the coating type insulating film is formed by a method such as printing and spin coating method, and the coating type insulating film is an organic resin insulating film or an insulating film containing Si.

25. The liquid crystal display apparatus according to claim 23, wherein the coating type insulating film used as the third insulating film is a photo-image type.

26. The liquid crystal display apparatus according to claim 10, wherein the first insulating film serving as the gate insulating film of the thin-film transistor, the second insulating film serving as the surface protecting film of the thin-film transistor, or a laminated film of the first insulating film and the second insulating film is collectively processed in a

self-aligning manner by using the pattern of the third insulating film formed selectively, and at least on a part of a region on the pixel electrode, the first insulating film, the second insulating film, or the laminated film of the first and second insulating films is formed selectively.

27. The liquid crystal display apparatus according to claim 7, wherein the third insulating film has a thickness of 0.5 to 4.0 µm.

28. The liquid crystal display apparatus according to claim 7, wherein the third insulating film has a permittivity of 1.5 to 6.5.

29. The liquid crystal display apparatus according to claim 21, wherein the coating type insulating film used as the fourth insulating film has a thickness of 0.1 to 0.5 µm.

30. The liquid crystal display apparatus according to claim 1, wherein a fifth insulating film is selectively formed with a permittivity of 7.0 or more so as to fill and flatten a step height region appearing due to the interlayer insulating film which is formed selectively on a superimposed part of the common signal electrode and the data signal wiring on at least a part of the region on the pixel electrode.

31. The liquid crystal display apparatus according to claim 1, wherein the fifth insulating film is selectively formed with a permittivity of 7.0 or more so as to fill and flatten a step height, which is

formed by selectively removing or reducing in thickness at least a part of an insulating film formed at least on a part of a region on the pixel electrode on the interlayer insulating film formed on a superimposed part of the common signal electrode and the data signal wiring.

32. The liquid crystal display apparatus according to claim 1, wherein the common signal wiring is formed by extending the common signal electrode on the same layer as the common signal electrode.

33. The liquid crystal display apparatus according to claim 1, wherein the common signal wiring is formed on the same layer as the scanning signal wiring or the data signal wiring, and the common signal wiring and the common signal electrode are connected to each other via a through hole, which is opened on the interlayer insulating film.

34. The liquid crystal display apparatus according to claim 1, wherein the pixel electrode is composed of a transparent conductive film made of indium oxide such as indium tin oxide (ITO), indium zinc oxide (IZO), and indium germanium oxide (IGO).

35. The liquid crystal display apparatus according to claim 34, wherein the pixel electrode is composed of a transparent conductive film made of polycrystalline indium oxide.

36. The liquid crystal display apparatus according to claim 1, wherein at least a part of the common

signal electrode is composed of a transparent conductive film made of indium oxide such as indium tin oxide (ITO), indium zinc oxide (IZO), and indium germanium oxide (IGO).

37. The liquid crystal display apparatus according to claim 36, wherein the transparent conductive film made of indium oxide is made of amorphous, the transparent conductive film being included in at least a part of the common signal electrode.

38. The liquid crystal display apparatus according to claim 34, wherein a normally black mode is set in which black display is provided when no electric field is generated between the pixel electrode and the common signal electrode.